

terated; and the inferior portion of the uterus so thick that it was difficult to distinguish by the touch the head of the infant through it. The mouth of the uterus was a quarter of an inch thick; hard, and felt like cartilage. The end of the forefinger could with difficulty be introduced into it. Fumigations were directed to the vulva, and the application to the neck of the uterus of a sponge wet with a decoction of chamomile. The next day, January 2d, the parts continued in the same state; the patient was bled twelve ounces; the contractions of the uterus were less painful; at night the os tincæ was dilated to the extent of an inch, and it was hoped would continue to enlarge, but the next day it was found to have remained stationary. A sponge was wet with a decoction of belladonna and of marsh mallows, two drachms each, and of four drachms of flaxseed, and applied to the neck of the uterus, and renewed every half hour. At the termination of three hours, the os tincæ had dilated to three inches and a half, but as the head advanced slowly, the forceps were applied after some hours, and a vigorous child delivered.—*Rev. Méd. Feb. 1833.*

MEDICAL JURISPRUDENCE.

42. *Case of Poisoning by Arsenic.*—In a late No. of the *Annales d'Hygiène Publique et de Méd. Leg.* there is an interesting account of an examination of bread suspected to contain arsenious acid, by M. ORFILA. That distinguished chemist succeeded in detecting the poison by the following method. The bread having been cut into pieces was treated with cold distilled water, the liquor filtered, and then tested by concentrated liquid hydro-sulphuric acid, (solution of sulphuretted hydrogen.) The fluid became instantly yellow, but was not sensibly troubled. Some drops of muriatic acid were added to precipitate any sulphuret of arsenic which might form. The liquid was so little troubled, that it would be difficult to suspect what was subsequently to happen. In fact it was *only after some days* that there was deposited a yellow precipitate, consisting of the sulphuret of arsenic and organic matter. Had he only waited twenty-four or forty-eight hours, no precipitate would have been obtained.

The precipitate was separated and washed repeatedly in distilled water, then placed on a little filter, and washed with very weak ammonia, by which the sulphuret of arsenic was dissolved, and the organic matters left. This proceeding was frequently repeated, the ammoniacal solution then evaporated to dryness, the residuum mixed with a little charcoal and carbonate of potass. The mixture was then *toasted*, by holding the watch-glass at a certain distance from live coals, with a view to decompose any animal matters, which the sulphuret of arsenic might still contain. The watch-glass and its contents were then pulverized in a mortar, and the powder introduced into a tube, the upper extremity of which was drawn out in the spirit-lamp. The part containing the mixture was then brought to a red heat, when metallic arsenic quickly appeared.

"I should remark," says M. O. "1st, that it is important when we act on a small quantity of matter, to calcine it together with the ground watch-glass, because without this precaution we should often fail in detaching the sulphuret of arsenic; 2d, that we must not push the previous torrefaction too far, lest we decompose and volatilize the sulphuret of arsenic, or even reduce and lose the metal in the atmosphere. In conclusion, I think it my duty to insist especially on the process which should be constantly adopted when we endeavour to reduce the metal from very small particles of arsenious acid, or of the sulphuret of arsenic. The tube should be narrowed and drawn out in the spirit-lamp. The oxydation of the metal should also be accomplished by placing the metal in a tube open at both ends, and of moderately large size. Metallic arsenic is, moreover, recognised, 1st, by its physical properties; 2d, by its garlic smell; 3d, by the faculty it possesses of dissolving in warm nitric acid, and affording by the eva-

poration of the liquid a white mass, which being dissolved in distilled water and treated while warm in a phial with liquid sulphuretted hydrogen, affords in a few seconds a yellow precipitate of sulphuret of arsenic, soluble in ammonia, which deprives it of its colour."

43. *On the Poisonous Properties of the Salts of Lead.*—Among the salts of lead Dr. A. T. THOMSON has endeavoured to show that it is probably that the carbonate is the only direct poison; and that the seemingly poisonous properties of the other salts of that metal depend on their conversion into this.

The author commences his inquiry by the detail of a few historical facts, to show that the poisonous effects of the carbonate of lead were known at an early period, and that the opinions respecting the poisonous properties of the other salts of this metal are of modern date. Paracelsus, who introduced the medicinal employment of acetate of lead, administered it in large doses with impunity; and instances are recorded in which persons have swallowed from one drachm to six drachms of the salt, without experiencing any injurious consequences.

He then states some experiments which he made to determine the affinity of the different salts of lead for carbonic acid; from which it appears, that subacetate and citrate of lead in solution have so powerful an affinity for carbonic acid, as to take it from the air, and all other substances containing it; that the affinity of the acetate for this acid is comparatively weak; and that carbonic acid effects no change whatever on the nitrate, muriate, sulphate, phosphate, and tartrate of lead.

The next object of the author was to examine the effect which the three salts, convertible into the carbonate, produce upon animals. Eight experiments upon dogs are detailed, which led to the conclusion that these quadrupeds are bad subjects of experiments with the salts of lead. None of the dogs died. He endeavours to account for the deaths recorded by Orfila in similar experiments on dogs, by suggesting that, as the doses were extravagantly large, the irritation excited in the stomach produced inflammation and death, in the same manner as common salt or any other salt in excessive doses, independent of any poisonous property. He also thinks that some fallacy may arise from placing a ligature upon the œsophagus, as under such circumstances the animal cannot be considered to be in a natural condition. Eight experiments upon rabbits are next detailed. In the first experiment, six grains of *nitrate of lead* in solution were injected into the stomach of a strong young rabbit; no injurious consequences resulted, nor did any inconvenience follow the repetition of the experiment with nine grains of the *nitrate* on the following day. Three days afterwards, when the same rabbit appeared in perfect health, six grains of the *carbonate* of lead, suspended in mucilage of starch, were injected into the stomach of the animal. On the following morning he was found dead. The only peculiarity perceived, on opening the body, was the turgid state of *all* the cavities of the heart; the blood was slightly coagulated in the right auricle, but it was fluid in the other cavities.

In the fourth experiment, six grains of *muriate of lead*, in solution, were injected into the stomach of a strong young rabbit, without being followed by any inconvenience. Three days afterwards, six grains of the carbonate were thrown into the stomach of the same rabbit, who died on the morning of the second day.

Two other rabbits were treated with seven grains of the *acetate* and of the *subacetate* of lead. No inconvenience followed the administration of the acetate; that of the subacetate was followed by dejection and languor, with a disinclination to move and to take food: the animal, however, was alive at the termination of a week after taking the salt; it died in twelve hours after taking four grains of the carbonate of lead.

The author is disposed to conclude that the subacetate of lead, which approaches nearest to the carbonate in its effects, owes its poisonous property to its powerful affinity for carbonic acid: he points out the consequences which

would result to the practice of medicine, if it should appear that the carbonate is the only salt of lead deleterious to the human subject; and remarks that these experiments appear to form an exception to the doctrine, that the activity of a poisonous salt is in proportion to its solubility.—*Second Report of the British Association for the Advancement of Science.*

MEDICAL STATISTICS.

44. *On the Bearing of Epidemics upon Medical Statistics, and Political Economy.*—After a close investigation of the subject, M. VILLERME arrives at the following conclusions. "That epidemics diminish both in frequency and intensity in those countries which from a state of barbarity, or ignorance pass to that of civilization, and also in those which pass from a semi-civilized condition to one in which civilization is at its acmé. That the lower classes of society being more frequently attacked, consequently more frequently fall victims to the epidemic, than the middling classes, or those in good circumstances. That in causing the disappearance of epidemics, and in diminishing their force and frequency, civilization has attended in a great many situations both the maximum and minimum epochs of life, but more particularly the former or maximum. That in a given number of patients of all ages, the mortality will be found to be much greater in the very young and very old; so that in this respect, the laws of epidemic mortality correspond with those ordinarily observed, it results from this, that those epidemics which attack the two extremes of life, are *ceteris paribus*, the most fatal. That the vaccine has effected at least in the thickly populated country of France, nothing more than alter the period of death, but in those countries the inhabitants of which are widely separated from each other, and who possess the means of subsistence in greater profusion than is absolutely necessary, it undoubtedly increases the population. We should not suppose, however, that it cannot contribute even amongst us, in any way to produce this increase. In substituting, during a given period, one infant who arrives at the age of maturity, for two who although they consume, die before they are able to produce any increase, the vaccine favours production; and consequently indirectly favours by the employment of its products, or the means produced by its employment, an increase of population. But this effect is very trifling in comparison with that usually attributed to the vaccine. All those measures by which the diseases of infancy are warded off, operate in the same manner; they moreover in suppressing one of the causes of death, lend additional activity to others. That in civilized countries, the most fatal epidemics produce but a transient diminution in the population; the vacancies which they create being speedily filled up, both by marriages and by births, which are proportionably more numerous than ever, and also by the influx of strangers who are induced to come in, by the numerous vacancies produced in the different professions, trades, &c. But if epidemics do not commonly diminish the population of those countries which they ravage, or at most only for a short period, they at least exert a manifest influence upon the population and its movements; an influence which varies according as the epidemic occurs annually, or at larger intervals. In the former case, that is where the epidemics are annual, as is the case along the banks of water-courses, or in the neighbourhood of marshes, the renewal of the population is observed to be more rapid, and the average term of life is shorter; there being very few who arrive at adult or old age. The population does not diminish, and for the simple reason, that marriages take place at a very early age, and in a given time, the number of births greatly exceeds that in other countries. The same space, which in a healthy country would be occupied by the same individual during a period of forty years, will in one in which the causes operating against longevity are particularly rife, be occupied by two or three different persons.